SGI

SGI Altix ICE 8200EX
(Intel Xeon X5570, 2.93 GHz, DDR3-1333)

SPECmpiM_base2007 = 59.8

SPECmpiM_peak2007 = Not Run

MPI2007 license: 4
Tested by: SGI
Test sponsor: SGI
Hardware Availability: Mar-2009
Software Availability: Aug-2009
Test date: Sep-2009

Results Table

<table>
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<tr>
<th>Benchmark</th>
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<th>Ratio</th>
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</table>

Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.
SPEC MPIM2007 Result

SGI

SGI Altix ICE 8200EX
(Intel Xeon X5570, 2.93 GHz, DDR3-1333)

SPECmpiM_peak2007 = Not Run
SPECmpiM_base2007 = 59.8

Results Table (Continued)

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</table>

Hardware Summary

Type of System: Homogeneous
Compute Node: SGI Altix ICE 8200EX Compute Node
Interconnects: InfiniBand (MPI), InfiniBand (I/O)
File Server Node: SGI InfiniteStorage Nexis 2000 NAS
Total Compute Nodes: 64
Total Chips: 128
Total Cores: 512
Total Threads: 1024
Total Memory: 1536 GB
Base Ranks Run: 512
Minimum Peak Ranks: --
Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C Compiler for Linux
Version 11.1, Build 20090630
C++ Compiler: Intel C++ Compiler for Linux
Version 11.1, Build 20090630
Fortran Compiler: Intel Fortran Compiler for Linux
Version 11.1, Build 20090630
Base Pointers: 64-bit
Peak Pointers: 64-bit
MPI Library: SGI MPT 1.24
Other MPI Info: OFED 1.4
Pre-processors: None
Other Software: None

Node Description: SGI Altix ICE 8200EX Compute Node

Hardware
Number of nodes: 64
Uses of the node: compute
Vendor: SGI
Model: SGI Altix ICE 8200EX (Intel Xeon X5570, 2.93 GHz, DDR3-1333)
CPU Name: Intel Xeon X5570
CPU(s) orderable: 1-2 chips
Chips enabled: 2
Cores enabled: 8
Cores per chip: 4
Threads per core: 2
CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz, 6.4 GT/s QPI, Hyper-Threading enabled
CPU MHz: 2934
Primary Cache: 32 KB L1 + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6*4GB DDR3-1333 CL9 RDIMMs)
Disk Subsystem: None
Other Hardware: None
Adapter: Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)
Number of Adapters: 1

Software
Adapter: Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)
Adapter Driver: OFED-1.4
Adapter Firmware: 2.6.0
Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2
Kernel 2.6.16.60-0.34-smp
Local File System: NFSv3
Shared File System: NFSv3 IPoIB
System State: Multi-user, run level 3
Other Software: SGI ProPack 6 for Linux Service Pack 3, SGI Tempo V 1.7

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.
### SPEC MPIM2007 Result

**SGI**

SGI Altix ICE 8200EX
(Intel Xeon X5570, 2.93 GHz, DDR3-1333)

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</table>

**Test date:** Sep-2009

**Hardware Availability:** Mar-2009

**Software Availability:** Aug-2009

#### Node Description: SGI Altix ICE 8200EX Compute Node

- **Slot Type:** PCIe x8 Gen2
- **Data Rate:** InfiniBand 4x DDR
- **Ports Used:** 2
- **Interconnect Type:** InfiniBand

#### Node Description: SGI InfiniteStorage Nexis 2000 NAS

**Hardware**

- **Number of nodes:** 1
- **Uses of the node:** fileserver
- **Vendor:** SGI
- **Model:** SGI Altix XE 240 (Intel Xeon 5140, 2.33 GHz)
- **CPU Name:** Intel Xeon 5140
- **CPU(s) orderable:** 1-2 chips
- **Chips enabled:** 2
- **Cores enabled:** 4
- **Cores per chip:** 2
- **Threads per core:** 1
- **CPU Characteristics:** 1333 MHz FSB
- **CPU MHz:** 2328
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 4 MB I+D on chip per chip
- **L3 Cache:** None
- **Other Cache:** None
- **Memory:** 24 GB (6*4GB DDR2-400 DIMMS)
- **Disk Subsystem:** 7 TB RAID 5
- **Other Hardware:** None
- **Adapter:** Mellanox MT25208 InfiniHost III Ex (PCIe x8 Gen1 2.5 GT/s)
- **Adapter Driver:** OFED-1.3
- **Adapter Firmware:** 5.3.0
- **Operating System:** SUSE Linux Enterprise Server 10 (x86_64) SP1 Kernel 2.6.16.54-0.2.5-smp
- **Local File System:** xfs
- **Shared File System:** --
- **System State:** Multi-user, run level 3
- **Other Software:** SGI ProPack 5 for Linux Service Pack 5

#### Interconnect Description: InfiniBand (MPI)

**Hardware**

- **Vendor:** Mellanox Technologies
- **Model:** MT26418 ConnectX
- **Switch Model:** Mellanox MT47396 InfiniScale III
- **Number of Switches:** 16
- **Number of Ports:** 24
- **Data Rate:** InfiniBand 4x DDR
- **Firmware:** 2020001

**Software**

- **Adaptation:** Mellanox MT25208 InfiniHost III Ex (PCIe x8 Gen1 2.5 GT/s)
- **Adapter Driver:** OFED-1.3
- **Adapter Firmware:** 5.3.0
- **Operating System:** SUSE Linux Enterprise Server 10 (x86_64) SP1 Kernel 2.6.16.54-0.2.5-smp
- **Local File System:** xfs
- **Shared File System:** --
- **System State:** Multi-user, run level 3
- **Other Software:** SGI ProPack 5 for Linux Service Pack 5

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SGI
SGI Altix ICE 8200EX
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Test date: Sep-2009
Hardware Availability: Mar-2009
Software Availability: Aug-2009

Interconnect Description: InfiniBand (MPI)

Topology: Bristle hypercube with express links
Primary Use: MPI traffic

Interconnect Description: InfiniBand (I/O)

Hardware
Vendor: Mellanox Technologies
Model: MT26418 ConnectX
Switch Model: Mellanox MT47396 InfiniScale-III
Number of Switches: 8
Number of Ports: 24
Data Rate: InfiniBand 4x DDR
Firmware: 2020001
Topologie: Bristle hypercube with express links
Primary Use: I/O traffic

Software

Submit Notes
The config file option 'submit' was used.

General Notes

Software environment:
export MPI_REQUEST_MAX=65536
export MPI_TYPE_MAX=32768
export MPI_BUFS_THRESHOLD=1
export MPI_DSM_DISTRIBUTE=yes
export MPI_IB_RAILS=2
ulimit -s unlimited

BIOS settings:
AMI BIOS version 8.15
Hyper-Threading Technology enabled (default)
Intel Turbo Boost Technology enabled (default)
Intel Turbo Boost Technology activated in the OS via
/etc/init.d/acpid start
/etc/init.d/powersaved start
powersave -f

Job Placement:
Each MPI job was assigned to a topologically compact set
of nodes, i.e. the minimal needed number of switches was
used for each job: 2 switches for 16/32/64 ranks, 4 switches
for 128 ranks, 8 switches for 256 ranks and 16 switches for
512 ranks.
SPEC MPI2007 Result

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Base Compiler Invocation

C benchmarks:
  icc

C++ benchmarks:
  126.lammps: icpc

Fortran benchmarks:
  ifort

Benchmarks using both Fortran and C:
  icc ifort

Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG
127.wrf2: -DSPEC_MPI_CASE_FLAG -DSPEC_MPI_LINUX

Base Optimization Flags

C benchmarks:
  -O3 -ipo -xT -no-prec-div

C++ benchmarks:
  126.lammps: -O3 -ipo -xT -no-prec-div -ansi-alias

Fortran benchmarks:
  -O3 -ipo -xT -no-prec-div

Benchmarks using both Fortran and C:
  -O3 -ipo -xT -no-prec-div

Base Other Flags

C benchmarks:
  -lmpi

C++ benchmarks:
  126.lammps: -lmpi

Fortran benchmarks:
  -lmpi

Continued on next page
**SPEC MPIM2007 Result**

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**Base Other Flags (Continued)**

Benchmarks using both Fortran and C:
- mpi

The flags file that was used to format this result can be browsed at
[http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel1111_flags.html](http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel1111_flags.html)

You can also download the XML flags source by saving the following link:
[http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel1111_flags.xml](http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel1111_flags.xml)

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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